designing musical games :: gaming musical design

Rob Hamilton & Chris Platz
CCRMA Summer Workshop
July 20-24, 2015
Music
Music
designing musical games

Music

Play
designing musical games
designing musical games

Music

Play

Interaction

Virtuosity
designing musical games

Music

Play

Motion

Sound

Interaction

Virtuosity

Space
designing musical games

Gaming

- Gesture
- Motion
- Design
- Virtuosity

Play

- Sound
- Interaction
- Space
- Performance
designing musical games

Music & Gaming

Play

Gesture

Motion

Interaction

Sound

Design

Virtuosity

Space

Performance
designing musical games :: gaming musical design
“Game Music”

http://www.audiogang.org/awards/2015-awards/
designing musical games

https://www.destinythegame.com/

by Marty O'Donnell et al.

https://www.youtube.com/watch?v=VFh5ArG46_M
But far and away the most beautiful and poignant mechanic employed in *Journey* is the “shout,” the single, toneless, non-articulate chime that signals the hooded figure’s communication with its environment. “When we were working with the prototype, we knew we wanted a simple way to communicate that still had nuances. We originally used a real human voice… but it felt really raw because this character does not look like someone who would make that sound. We kept talking about the right sound to make, and our composer Austin Wintory thought of making a progression through tones. Over time the shout changes and becomes deeper and has more humanity — and in the final level the shout has a singer’s voice in it. It’s very subtle,” Chen explained.

The singing in the game is of four types: a light quick button press for a “coo”, a hard quick press for a “chirp”, a reasonably-held press for a “call”, and a long-held press for a large “shout”. They are a combination of re-pitched and processed birds, along with musical elements provided by composer Austin Wintory himself. Austin made musical parts for each type to compliment the score in each of the levels, and when close to another player, there are falling variations from your character, and rising variations from your companion.

The buried vocal is Lisbeth Scott, the singer of the final credits track, who is also the main element of the angelic white ancestor figures.
But far and away the most beautiful and poignant mechanic employed in Journey is the “shout,” the single, toneless, non-articulate chime that signals the hooded figure’s communication with its environment. “When we were working with the prototype, we knew we wanted a simple way to communicate that still had nuances. We originally used a real human voice… but it felt really raw because this character does not look like someone who would make that sound. We kept talking about the right sound to make, and our composer Austin Wintory thought of making a progression through tones. Over time the shout changes and becomes deeper and has more humanity — and in the final level the shout has a singer’s voice in it. It’s very subtle,” Chen explained.

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Abstract Communication
designing musical games

by Nickleback
designing musical games
by Rimsky-Korsakov, performed by Lang Lang
continuum
"background"  continuum  “performative”
designing musical games

“narrative”

“performance”

“background”
or
“film-like”

“virtuosity”
designing musical games

“background” or “film-like”

“virtuosity”

= ?
"background" or "film-like"

+ "virtuosity"

?
designing musical games

filmic influence

non-diegetic          continuum          diegetic
designing musical games

non-diegetic

Score to *Psycho* by Bernard Herrmann

continuum

Cantina Band from *Star Wars* by John Williams

diegetic
designing musical games

non-diegetic

"Source Scoring"
Earle Hagan
Scoring for Films

diegetic
designing musical games


Keiichi Suzuki, Composer
Music in Virtual Worlds
nous sommes tous Fernando… (2008)

study #1 (2008)
From Riley’s Performance Instructions:

“One of the joys of *In C* is the interaction of the players in polyrhythmic combinations that spontaneously arise between patterns.”
AVANT-GARDE

Politecnico Sede di Milano Bovisa
Aula De Carli

Mixed Reality Performance: An Evening on Sirikata
A project commissioned by the MITO SettembreMusica Festival

Terry Riley
In C, for Laptop Orchestra and Acoustic Instruments

Juan-Pablo Caceres, Robert Hamilton
Canned Bits Mechanics, for Three Remote Disklaviers at CCRMA, a Piano and Visualizations in Sirikata

Robert Hamilton, Juan-Pablo Caceres
Of Two Worlds, for Interactive Sirikata Performers

Dialogues, Networked Improvisations

With the participation of
Jeffrey T. Schnapp,
founder-director, Stanford Humanities Lab
Juan-Pablo Caceres,
Robert Hamilton,
Chryssie Nanou,
Center for Computer Research in Music and Acoustics
Torino Milano
Festival Internazionale
della Musica
03–24 settembre 2010
Quarta edizione

Tele-Harmonium
for piano and virtual performer

AVANGUARDIA
Politecnico Sede di Milano Bovisa
Aula De Carli

In collaborazione con
Stanford Humanities Lab
Center for Computer Research in Music and Acoustics, Stanford University
Politecnico di Milano
Social media dissemination a cura di 2WeCast

Chris Chafe
Siren Coud, per pianoforte, chitarra elettrica e pubblico
Robert Hamilton
Tele-Harmonium, per pianoforte e esecutori virtuali
Jieun Oh, Robert Hamilton
Dichotomous Harmonies, per tromboni analogici e sintetizzati
Juan-Pablo Caceres
Perkussionista, per pianoforte, percussioni virtuali e klavier
Luke Dahl, Jorge Herrera, Carr Wilkerson, Robert Hamilton
Tweet, per pubblico, Twitter e iPad controllers

Chryssie Nanou, pianoforte
Robert Hamilton, chitarra, elettronica
Juan-Pablo Caceres
Luke Dahl,
Jorge Herrera, elettronica
Unreal Engine 3 (UDK) + OSC

https://github.com/robertkhamilton/udkosc
https://github.com/robertkhamilton/osccraft
Additive Synthesis: “Marimba”

- Sine Wave + Sine Wave + Noise

- 1 * frequency
- 3 * frequency
- 400 ms. decay
- 100 ms. decay
- 44 ms. decay
- amplitude = 1.0
- amplitude = 0.5

https://github.com/robertkhamilton/osccraft
Grey Wastes

powered by unity

unity + libPD + iOS
“Wind” element

- Higher Q value narrows the frequency range
- Lower Q value makes it more noisy
- Center Frequency driven by player’s Height

Grey Wastes
Stochastic Compositional Elements

Generative rhythmic and melodic elements

• Speed of motion gates output
• Percussion inflection randomized within constraints
Grey Wastes

Analysis-based Compositional Elements

- Analyze musical scores
- Drive with game parameters

1) Load a JSON score into memory
   ```
   file load /demo/proceed/bach_chorale.json
   ```

2) Build probability models
   ```
   markov load
   ```

3) Request a note from voices 1-4
   ```
   markov next 1 1 1 1
   ```

unity + libPD + iOS
Virtuality & Gesture
Virtuality & Gesture

+ Leap Motion + OSC + Oculus Rift
Carillon

http://blog.leapmotion.com/twist-gears-massive-vr-music-engine-carillon/